

UTILITY PATENT APPLICATION TRANSMITTAL

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Attorney Docket No. 862.C1821

First Named Inventor or Application Identifier

NORIAKI TANAKA

Express Mail Label No.

APPLICATION ELEMENTS

See MPEP chapter 600 concerning utility patent application contents.

1. Fee Transmittal Form
(Submit an original, and a duplicate for fee processing)

2. Specification Total Pages 30

3. Drawing(s) (35 USC 113) Total Sheets 10

4. Oath or Declaration Total Pages 1

a. Newly executed (original or copy)

b. Unexecuted for information purposes

c. Copy from a prior application (37 CFR 1.63(d))
(for continuation/divisional with Box 17 completed)
[Note Box 5 below]

i. **DELETION OF INVENTOR(S)**

Signed Statement attached deleting inventor(s)
named in the prior application, see 37 CFR
1.63(d)(2) and 1.33(b).

5. Incorporation By Reference (useable if Box 4c is checked)
The entire disclosure of the prior application, from which a copy of the
oath or declaration is supplied under Box 4c, is considered as being
part of the disclosure of the accompanying application and is hereby
incorporated by reference therein.

ADDRESS TO: Assistant Commissioner for Patents
Box Patent Application
Washington, DC 20231

6. Microfiche Computer Program (Appendix)

7. Nucleotide and/or Amino Acid Sequence Submission
(if applicable, all necessary)

a. Computer Readable Copy

b. Paper Copy (identical to computer copy)

c. Statement verifying identity of above copies

ACCOMPANYING APPLICATION PARTS

8. Assignment Papers (cover sheet & document(s))

9. 37 CFR 3.73(b) Statement (when there is an assignee) Power of Attorney

10. English Translation Document (if applicable)

11. Information Disclosure Statement (IDS)/PTO-1449 Copies of IDS Citations

12. Preliminary Amendment

13. Return Receipt Postcard (MPEP 503)
(Should be specifically itemized)

14. Small Entity Statement(s) Statement filed in prior application
Status still proper and desired

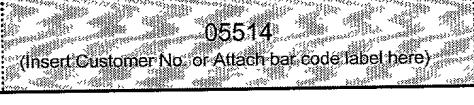
15. Certified Copy of Priority Document(s)
(if foreign priority is claimed)

16. Other: _____

17. If a CONTINUING APPLICATION, check appropriate box and supply the requisite information:

Continuation Divisional Continuation-in-part (CIP) of prior application No. ____ / ____

18. CORRESPONDENCE ADDRESS

Customer Number or Bar Code Label 
(Insert Customer No. or Attach bar code label here) or Correspondence address below

NAME

Address

City

Country

State

Telephone

Zip Code

Fax

+

CLAIMS	(1) FOR	(2) NUMBER FILED	(3) NUMBER EXTRA	(4) RATE	(5) CALCULATIONS
	TOTAL CLAIMS (37 CFR 1.16(c))	30-20 =	10	X \$ 18.00 =	\$180.00
	INDEPENDENT CLAIMS (37 CFR 1.16(b))	6-3 =	3	X \$ 78.00 =	\$234.00
	MULTIPLE DEPENDENT CLAIMS (if applicable) (37 CFR 1.16(d))			\$260.00 =	\$ 0.00
				BASIC FEE (37 CFR 1.16(a))	\$690.00
				Total of above Calculations =	\$1,104.00
	Reduction by 50% for filing by small entity (Note 37 CFR 1.9, 1.27, 1.28).				
				TOTAL =	\$1,104.00

19. Small entity status

a. A Small entity statement is enclosed
 b. A small entity statement was filed in the prior nonprovisional application and such status is still proper and desired.
 c. Is no longer claimed.

20. A check in the amount of \$ 1,104.00 to cover the filing fee is enclosed.21. A check in the amount of \$ 40.00 to cover the recordal fee is enclosed.

22. The Commissioner is hereby authorized to credit overpayments or charge the following fees to Deposit Account No. 06-1205:

a. Fees required under 37 CFR 1.16.
 b. Fees required under 37 CFR 1.17.
 c. Fees required under 37 CFR 1.18.

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

NAME	Leonard P. Diana (Reg. No. 29, 296)
SIGNATURE	
DATE	February 11, 2000

TITLE OF THE INVENTION

PRINTING SYSTEM AND METHOD OF CONTROLLING SAME

FIELD OF THE INVENTION

5

This invention relates to a printing system, as well as to a method of controlling the same, in which printing is performed by a plurality of printers in response to print requests from a plurality of terminal 10 devices connected via a network.

BACKGROUND OF THE INVENTION

The construction and operation of an image printing 15 apparatus used in the prior art will be described.

Fig. 1 is a diagram illustrating the construction of an image printing apparatus according to the prior art. As shown in Fig. 1, the apparatus includes a central processing unit (CPU) 101 for controlling the 20 overall apparatus; an internal storage 102 connected to the bus of the CPU 101 and typified by an random-access memory (RAM); an external storage device 103 of large storage capacity typified by a hard disk; a display unit 104 such as a CRT or liquid crystal display; a key input 25 unit 105 such as a keyboard or pointing device; a peripherals controller 106 typified by a Centronics

interface, SCSI or the like; and a printer 110 typified by a well-known electrophotographic or ink-jet printer.

When an operator uses the display unit 104 and key input unit 105 to order printing of image information 5 that has been stored in the external storage device 103, the CPU 101 sequentially executes program code in the internal storage device 102.

More specifically, first the image data that has been stored in the external storage device 103 is read 10 out and loaded in the internal storage device 102 using the peripherals controller 106. Next, the image information that has been loaded in the internal storage device 102 as a bit sequence is converted to a data structure suitable for printing and then transferred to 15 the printer 110 using the peripherals controller 106.

As a result, the printer 110 prints the image information based upon the bit-sequence information received.

In the example of the prior art described above, 20 multiple operators cannot print image information simultaneously and, hence, it is difficult to support an operation in which multiple image outputs are obtained.

Further, in a system in which a plurality of printers are connected via a network, jobs cannot be 25 allocated effectively, making it difficult to achieve an efficient operation.

In a case where a plurality of printing systems such as that of the above-described prior art are operated, centralized control of print orders cannot be implemented and system operation and billing management, 5 etc., are troublesome.

In other words, when statistics or billing information regarding all print jobs that belong to such a system is totalized, a totalization operation must be performed individually for each printing apparatus. 10 This involves an enormous amount of work.

SUMMARY OF THE INVENTION

Accordingly, an object of the present invention is 15 to provide a printing system, as well as a method of controlling the same, in which printing can be performed efficiently by a plurality of printers in response to print requests from a plurality of terminal devices connected via a network.

20 Another object of the present invention is to perform system operation and billing management efficiently by centralized control of print orders.

According to the present invention, the foregoing objects are attained by providing a printing system for 25 performing printing by a plurality of printers in response to print requests from a plurality of terminal

001100 001100 001100

devices connected via a network, the system comprising:
specifying means for specifying a terminal device, in
which image information to be printed has been stored,
in accordance with print requests from the plurality of
5 terminal devices; and designating means for instructing
a terminal device that has been specified by the
specifying means to transfer the image information to a
printer.

Further, according to the present invention, the
10 foregoing objects are attained by providing a method of
controlling a printing system for performing printing by
a plurality of printers in response to print requests
from a plurality of terminal devices connected via a
network, the method comprising: a specifying step of
15 specifying a terminal device, in which image information
to be printed has been stored, in accordance with print
requests from the plurality of terminal devices; and a
designating step of instructing a terminal device that
has been specified at the specifying step to transfer
20 the image information to a printer.

Other features and advantages of the present
invention will be apparent from the following
description taken in conjunction with the accompanying
drawings, in which like reference characters designate
25 the same or similar parts throughout the figures
thereof.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a diagram illustrating the construction
of an image printing apparatus according to the prior
5 art;

Fig. 2 is a diagram showing the configuration of an
image printing system according to an embodiment of the
present invention;

Fig. 3 is a diagram showing the construction of a
10 terminal device according to this embodiment;

Fig. 4 is a diagram showing the construction of an
order management unit according to this embodiment;

Fig. 5 is a diagram showing order attribute
information registered in an order management database;

15 Fig. 6 is a diagram showing a list of order
attributes displayed on a display unit;

Fig. 7 is a diagram showing a list of order
attributes which include thumbnail images (i.e., images
of reduced size);

20 Fig. 8 is a flowchart illustrating a print request
operation according to this embodiment;

Fig. 9 is a diagram showing a print-destination
designating screen according to this embodiment; and

25 Fig. 10 is a flowchart showing the operation of the
order management unit according to this embodiment.

DESCRIPTION OF THE PREFERRED EMBODIMENT

A preferred embodiment of the present invention will now be described in detail with reference to the 5 accompanying drawings.

Fig. 2 is a diagram illustrating the configuration of an image printing system according to this embodiment. As shown in Fig. 2, the system includes terminal devices 201a, 201b, 201c, ..., 201n which 10 operators use to order printing and generate print jobs; printers 202a, 202b, 202c, ..., 202m such as well-known electrophotographic or ink-jet printers for outputting the results of printing; an order management unit 203 for managing print jobs; and a network 204 connecting 15 these components.

Some of the printers 202a, 202b, 202c, ..., 202m are connected locally to the terminal devices 201a, ..., 201n by peripherals controllers typified by the well-known Centronics interface or SCSI interface, and some of 20 the printers are connected via the network.

For instance, in the example shown in Fig. 2, the printers 202a, 202b are connected locally to the terminal devices 201a, 201c, and the printers 202c, ..., 202m are connected via the network 204.

25 The construction of the terminal devices 201a, ..., 201n will be described next. Since the terminal devices

are identical in construction, only the terminal device 201 will be described.

Fig. 3 is a diagram illustrating the construction of the terminal device 201 according to this embodiment.

5 As shown in Fig. 3, the terminal device 201 includes a
CPU 301, an internal storage device 302, an external
storage device 303, a display unit 304, a key input unit
305 and a peripherals controller 306, which correspond
to the components 101 to 106 shown in Fig. 1. A printer
10 202 is connected to the peripherals controller 306 as
necessary. The terminal device 201 further includes a
network device 307, which controls the connection to the
network 204, and an image input unit 308. The image
input unit 308 comprises a scanner for optically reading
15 an image that has been recorded on, e.g., paper or film,
and inputting image data representing the image read, or
a reader device for reading in and outputting image data
that has been recorded on a recording medium such as a
floppy disk or magneto-optic disk.

20 The image data that has entered from the image input unit 308 is stored in the external storage device 303. Each image in the external storage device 303 has an image file assigned thereto and is managed by the image file.

25 The construction of the order management unit 203
shown in Fig. 2 will now be described.

Fig. 4 is a diagram showing the construction of the order management unit 203 according to this embodiment.

As shown in Fig. 4, the order management unit 203 includes a CPU 401, an internal storage device 402, an external storage device 403, a peripherals controller 406 and a network device 407. An order management database 410 is provided within the external storage device 403.

[Registration of print orders]

10 An operation through which an operator registers image data, which has been stored in the external storage device 303 of his/her own local terminal device, in the order management unit 203 using the terminal device 201a will now be described.

15 First, the operator manipulates the key input unit 305 of the terminal device 201a to designate one image in the image data of a plurality of files that have been input from the image input unit 308 and stored in the external storage device 303 within the terminal device 201a and to specify the creation of a print order. In response, the CPU 301 sends the order management unit 203 attribute information such as the name of the image file, the number of pages to be printed and the paper size, which have been stored in the external storage device 303, via the network device 307.

It is assumed that the name of an image file is

constructed by the CPU 301 as a combination of a unique file name of each image in the external storage device 303 of the terminal device 201a and an identifier of the terminal device 201a and is sent to the order management 5 unit 203.

By way of example, if the unique file name of a certain image in the terminal device 201a is image1.dat and the identifier of the terminal device 201a is terminal_1a, then the image file name that is sent to 10 the order management unit 203 will be terminal_1a:image1.dat.

As shown in Fig. 2, the order management unit 203 is connected via the network and is adapted so as to communicate with all of the terminal devices 201a - 201n 15 and printers 202a - 202m. A client - server scheme is employed as the mode of connecting each terminal device to the order management unit 203. As a result, the order management unit 203 is capable of accepting processing requests from a plurality of terminal devices 20 simultaneously and asynchronously.

Image file names and attribute information received from the terminal device 201a are registered in the order management database 410 of the order management unit 203 in the manner shown in Fig. 5. In the example depicted in Fig. 5, order attribute information consists 25 of an ID 501 for uniquely identifying an order, an image

file name 502, number 503 of pages to be printed and
print date 504.

In the example described above, the registration of
an image file and attribute information in the order
5 management unit 203 is executed in response to operation
of the key input unit 305 by the operator. However, an
arrangement may be adopted in which the image file and
attribute information are registered in the order
management unit 203 automatically using the input of
10 image data from the image input unit 308 and the storage
thereof in the external storage device 303 as the
trigger.

[Order list]

An operation through which print orders that have
15 been registered in the order management unit 203 are
displayed as a list on the display unit 304 of terminal
device 201a will now be described.

First, the operator manipulates the key input unit
305 of the terminal device 201a to request an order list
20 that has been registered in the order management unit
203. In response, the CPU 301 of the terminal device
201a requests the order management unit 203 for the list
of print orders, which have been registered in the order
management database 410, via the network 204.

25 Upon receiving this request, the order management
unit 203 reads out the entries of the order management

database 410 sequentially and sends the order attribute information to the terminal device 201a via the network device 407. As a result, the terminal device 201a displays a list of the order attributes on the display unit 304 in the manner shown in Fig. 6.

As shown in Fig. 7, it is possible to display also thumbnail images (images of reduced size) of the print image information together with the list of order attributes. To display the thumbnail images, the CPU 401 of the order management unit 203 extracts the applicable files from the external storage device of the terminal device storing the image files based upon the file names in the order management database 410, reduces the images to the prescribed size and transfers the reduced images to the terminal device 201a, where the CPU 301 causes the images to be displayed on the display unit 304.

[Execution of printing]

An operation through which an operator selects an order desired to be printed from the list displayed on the display unit 304 of the terminal device 201a and requests printing of the order will be described next.

Fig. 8 is a flowchart illustrating a print request operation executed by the CPU 301 of external storage device 103a according to this embodiment.

At step S101, the operator observes the list of the

kind shown in Fig. 6 or 7 displayed on the display unit 304 of the terminal device 201a and selects an order desired to be printed. Then, at step S102, the CPU 301 executes processing for designating a print destination 5 stored in the internal storage device 302, whereby a window of the kind shown in Fig. 9 is displayed on the display unit 304. The operator selects to designate or not to designate a print destination on the display unit 304 of the terminal device 201a.

10 If the operator does not designate a print destination, control proceeds to step S103 to decide a print destination in dependence upon an initially set value that was stored beforehand in the external storage device 303 of the terminal device 201a or in the 15 external storage device 403 of the order management unit 203 when the image data was stored in the external storage device 303. More specifically, if the initially set value is a fixed output destination, a printer (e.g., printer 202c) set in advance as the default is 20 made the print destination. If the initially set value is that of the local terminal, a printer (e.g., 202a or 202b) connected directly to the terminal device which the operator used to issue the print order is made the print destination.

25 In other words, if the initially set value is indicative of the local terminal, the printer 202a

connected directly to the terminal device 201a that issued the print order is designated as the print destination. It should be noted that if actual image data has been stored in the external storage device 303 within terminal device 201a, printing can be executed immediately because it is unnecessary to transfer data via the network 204 at the time of printing.

If the operator designates a print destination at step S102 using the print-destination designating screen shown in Fig. 9, control proceeds to step S104, where the designated printer is adopted as the print destination. Steps S103 and S104 are followed by step S105, at which the print request which includes the selected order ID and print destination is transmitted to the order management unit 203.

Next, an operation through which the order management unit 203 specifies printing by the printer of the designated destination based upon the print request from the terminal device 201a will be described.

Fig. 10 is a flowchart illustrating an operation executed by the CPU 401 of the order management unit 203 according to this embodiment.

First, at step S201, the CPU 401 of the order management unit 203 searches the order management database 410 based upon the data ID sent from the terminal device 201a and extracts information stored in

each field of the data ID for which a match has been obtained. The extracted information includes the attribute information such as the image file name and number of pages to be printed, as shown in Fig. 5.

5 Next, at step S203, the CPU 401 executes an analysis module as means for analyzing the image file name, analyzes the image file name and determines to which terminal device the external storage device storing the applicable image file is connected. For
10 example, if the file name of the image file is terminal_1a:imag1.dat, then the CPU 401 judges that the image file has been stored in terminal_1a, i.e., in terminal device 201a. It is assumed here that the analysis module has been stored in the internal storage
15 device 402.

Next, at step S204, the CPU 401 determines whether the terminal device having the external storage device 303 in which the image file has been stored is connected locally to the designated printer via the peripherals
20 controller 306. If the terminal device and the designated printer have been connected locally, control proceeds to step S205, where information such as the image file name and number of pages to be printed is transferred to this terminal device and the terminal
25 device is instructed to print the image in the designated number of copies using the locally connected

printer.

For example, assume that the image file specified by the order ID has been stored in the external storage device 303 connected to the terminal device 201c and
5 that the designated printer is the locally connected printer 202b. In response to a print order received from the order management unit 203 via the network 204, the terminal device 201c transfers the image bit sequence and attribute information, which is typified by
10 the information on number of copies, stored in the image file under the received image file name to the printer 202b connected locally via the peripherals controller 306. The printer 202b then prints the image in accordance with the received image bit sequence and
15 attribute information received.

If it is determined at step S204 that the terminal device having the external storage device in which the image file has been stored is not connected locally to the designated printer via the peripherals controller
20 306, i.e., that it is connected via the network device 307, then control proceeds to step S206. Here the image file name and information such as the number of pages to be printed and information designating the printer are transferred to the terminal device to which is connected
25 the external storage device storing the image file specified by the order ID, and this terminal device is

instructed to print the image in the designated number of copies using the printer connected via the network device 307.

For example, assume that the image file specified
5 by the order ID has been stored in the external storage device 303 connected to the terminal device 201b and that the designated printer is the printer 202c connected via the network. In response to a print order received via the network device 307, the terminal device
10 201b acquires the image file data from the external storage device 303 connected locally and transfers the image data, which has been stored in the internal storage device 302, to the printer 202c via the network device 307 from a transfer module, which is the image
15 transfer means. Also transferred to the printer 202c is information such as the number of copies to be printed. The printer 202c then prints the image in accordance with the received image bit sequence and attribute information received.

20 When printing ends through the operation described above, the CPU 401 of the order management unit 203 stores the printing date in the applicable record of the order management database 410 shown in Fig. 5, thereby updating the database.

25 The above-described registration of a print order, acquisition of the list and execution of printing may

all be performed at the same terminal or each may be performed at a different terminal. For example, the printing of a print order that has been registered in the order management unit 203 from the terminal device 201a can be commanded from the terminal device 201b. Further, by providing the order management unit 203 with an authentication function, only a specific terminal device is allowed to monitor the registered order and to execute print processing based upon the order. This makes it possible to prevent an unspecified terminal user from accessing an image file that has been stored in one's own machine.

[Totalization of billing information]

Thus, as set forth above, management of printing orders to a plurality of printers is performed by the single order management unit 203 from a plurality of terminal devices. In other words, totalization of billing information and statistical information regarding all print orders in the system is completed by totalizing the data acquired from the order management database 410 of the single order management unit 203. An example of this will be illustrated below.

If an operator uses the terminal device 201a to command the totalization of billing information regarding print orders that were printed on a given day, the CPU 301 of the terminal device 201a sends a billing

totalization command to the order management unit 203 via the network device 307.

In accordance with the command received, the CPU 401 of the order management unit 203 executes a 5 statistical-information totalization module, which serves as statistical-information totalizing means, stored in the internal storage device 402. The statistical-information totalization module executed by the CPU 401 first extracts the list of print orders 10 printed on the given day from the order management database 410. At this time reference is had to the printing-date field 504 of the order management database 410. The CPU 410 of the order management unit 203 then acquires statistical information corresponding to these 15 print orders from the order management database 410, executes processing such as calculation of the billing fee per page printed and sends the results of calculation to the terminal device 201a via the network device 407.

20 In response, the CPU 301 of the terminal device 201a causes the received billing information to be displayed on the display unit 304.

Thus, in accordance with this embodiment of the present invention, simultaneous printing by a plurality 25 of operators can be achieved by constructing a system having a single order management unit 203, designating

means for designating printers, a plurality of terminal devices and a plurality of printers.

Further, by exercising management using a pointer (file name) that points to actual print data present at 5 each terminal, rather than storing the actual print data in the order management unit 203, the system can be implemented without requiring that the order management unit 203 have a large storage capacity.

Further, by centralizing the order management 10 database 410, the totalization of statistical information, such as the totalization of billing information, that has been performed separately for each printer in the prior art can now be executed collectively by the order management unit 203.

15 The present invention can be applied to a system constituted by a plurality of devices (e.g., a host computer, interface, reader, printer, etc.) or to an apparatus comprising a single device (e.g., a copier or facsimile machine, etc.).

20 Furthermore, it goes without saying that the object of the invention is attained even by supplying a storage medium storing the program codes of the software for performing the functions of the foregoing embodiment to a system or to an apparatus, reading the program codes 25 with a computer (e.g., a CPU or MPU) of the system or apparatus from the storage medium, and then executing

the program codes.

In this case, the program codes read from the storage medium implement the novel functions of the invention, and the storage medium storing the program
5 codes constitutes the invention.

Further, the storage medium, such as a floppy disk, hard disk, optical disk, magneto-optical disk, CD-ROM, CD-R, magnetic tape, non-volatile type memory card or ROM can be used to provide the program codes.

10 Furthermore, besides the case where the aforesaid functions according to the embodiment are implemented by executing the program codes read by a computer, it goes without saying that the present invention covers a case where an operating system or the like running on the
15 computer performs a part of or the entire process in accordance with the designation of program codes and implements the functions according to the embodiment.

It goes without saying that the present invention further covers a case where, after the program codes
20 read from the storage medium are written in a function expansion board inserted into the computer or in a memory provided in a function expansion unit connected to the computer, a CPU or the like contained in the function expansion board or function expansion unit
25 performs a part of or the entire process in accordance with the designation of program codes and implements the

functions of the above embodiment.

Thus, in accordance with the embodiment, as described above, printing can be performed efficiently by a plurality of printers in response to print requests 5 from a plurality of terminal devices connected via a network.

As many apparently widely different embodiments of the present invention can be made without departing from the spirit and scope thereof, it is to be understood 10 that the invention is not limited to the specific embodiments thereof except as defined in the appended claims.

WHAT IS CLAIMED IS:

1. A printing system for performing printing by a plurality of printers in response to print requests from a plurality of terminal devices connected via a network,
5 comprising:
 - specifying means for specifying a terminal device, in which image information to be printed has been stored, in accordance with print requests from said plurality of terminal devices; and
- 10 first designating means for instructing a terminal device that has been specified by said specifying means to transfer the image information to a printer.
2. The system according to claim 1, further comprising second designating means for designating a printer that
15 is to print image information;
 - wherein said first designating means instructs transfer of the image information in dependence upon mode of connection between the printer designated by said second designating means and the terminal device
- 20 storing the image information.
3. The system according to claim 2, wherein said first designating means instructs transfer of the image information in dependence upon whether said terminal device and printer are connected locally or via a
25 network.
4. The system according to claim 1, wherein said

specifying means includes a management database for managing image information as image file names;

5 said specifying means specifying a terminal device, which is storing image information to be printed, based upon an image file name that has been registered in said management database.

10 5. The system according to claim 4, wherein the image file name is a combination of a unique file name in the terminal device storing the image information and an identifier of this terminal device.

15 6. The system according to claim 4, further comprising totalization means for totalizing statistical information based upon attribute information in said management database.

20 15. 7. The system according to claim 6, wherein the attribute information includes information on identifiers, image file names, number of pages to be printed and printing date.

25 8. A method of controlling a printing system for performing printing by a plurality of printers in response to print requests from a plurality of terminal devices connected via a network, comprising:

30 a specifying step of specifying a terminal device, in which image information to be printed has been stored, in accordance with print requests from the plurality of terminal devices; and

a first designating step of instructing a terminal device that has been specified at said specifying step to transfer the image information to a printer.

9. The method according to claim 8, further comprising
5 a second designating step of designating a printer that
is to print image information;

wherein said first designating step instructs transfer of the image information in dependence upon mode of connection between the printer designated at
10 said second designating step and the terminal device storing the image information.

10. The method according to claim 9, wherein said first designating step instructs transfer of the image information in dependence upon whether said terminal
15 device and printer are connected locally or via a network.

11. The method according to claim 8, wherein said specifying step specifies a terminal device, which is storing image information to be printed, based upon an
20 image file name that has been registered in a management database for managing image information as image file names.

12. The method according to claim 11, wherein the image file name is a combination of a unique file name in the
25 terminal device storing the image information and an identifier of this terminal device.

13. The method according to claim 11, further comprising a totalization step of totalizing statistical information based upon attribute information in said management database.

5 14. The method according to claim 13, wherein the attribute information includes information on identifiers, image file names, number of pages to be printed and printing date.

10 15. A computer-readable storage medium storing program code of a method of controlling a printing system, comprising:

15 code of a specifying step of specifying a terminal device, in which image information to be printed has been stored, in accordance with print requests from a plurality of terminal devices; and

a designating step of instructing a specified terminal device to transfer the image information to a printer.

20 16. A printing system having a plurality of image storage devices connected via a network and a plurality of printers, said printing system comprising:

specifying means for specifying an image storage device, in which image information to be printed has been stored, in accordance with print requests from 25 terminal devices connected via the network; and

first designating means for instructing that the

image information, which has been stored in an image storage device specified by said specifying means, is transferred to a printer.

17. The system according to claim 16, further

5 comprising second designating means for designating a printer that is to print image information;

wherein said first designating means instructs that the image information be transferred to the printer designated by said second designating means.

10 18. The system according to claim 17, wherein said first designating means designates mode of transfer of the image information in dependence upon whether said image storage device and said printer are connected locally or via a network.

15 19. The system according to claim 16, wherein said specifying means includes a management database for managing image information as image file names;

20 said specifying means specifying an image storage device, which is storing image information to be printed, based upon an image file name that has been registered in said management database.

25 20. The system according to claim 19, wherein the image file name is a combination of a unique file name in the terminal device storing the image information and an identifier of this terminal device.

21. The system according to claim 19, further

comprising totalization means for totalizing statistical information based upon attribute information in said management database.

22. The system according to claim 21, wherein the
5 attribute information includes information on identifiers, image file names, number of pages to be printed and printing date.

23. A method of controlling a printing system having a plurality of image storage devices connected via a
10 network and a plurality of printers, said method comprising:

a specifying step of specifying an image storage device, in which image information to be printed has been stored, in accordance with print requests from
15 terminal devices connected via the network; and

a first designating step of instructing that the image information, which has been stored in an image storage device specified at said specifying step, is transferred to a printer.

20 24. The method according to claim 23, further comprising a second designating step of designating a printer that is to print image information;

wherein said first designating step instructs that the image information be transferred to the printer
25 designated at said second designating step.

25. The method according to claim 24, wherein said

first designating step designates mode of transfer in dependence upon whether said image storage device and printer are connected locally or via a network.

26. The method according to claim 23, wherein said

5 specifying step specifies an image storage device, which is storing image information to be printed, based upon an image file name that has been registered in a management database for managing image information as image file names.

10 27. The method according to claim 26, wherein the image file name is a combination of a unique file name in the terminal device storing the image information and an identifier of this terminal device.

15 28. The method according to claim 26, further comprising a totalization step of totalizing statistical information based upon attribute information in said management database.

20 29. The method according to claim 28, wherein the attribute information includes information on identifiers, image file names, number of pages to be printed and printing date.

30. A computer-readable storage medium storing program code of a method of controlling a printing system, comprising:

25 code of a specifying step of specifying an image storage device, in which image information to be printed

has been stored, in accordance with a print request from a terminal device; and

code of a designating step of instructing that the image information, which has been stored in a specified
5 image storage device, be transferred to a printer.

ABSTRACT OF THE DISCLOSURE

Disclosed are a printing system and a method of controlling the same, in which a terminal device storing 5 image information to be printed is specified by an order management unit (203) in accordance with print requests from a plurality of terminal devices. Depending upon whether the specified terminal device and a printer to perform printing are connected locally or via a network 10 (204), the specified terminal device is instructed to transfer the image information to a printer to perform printing. As a result, printing can be performed efficiently by a plurality of printers in response to print requests from a plurality of terminal devices 15 connected via a network.

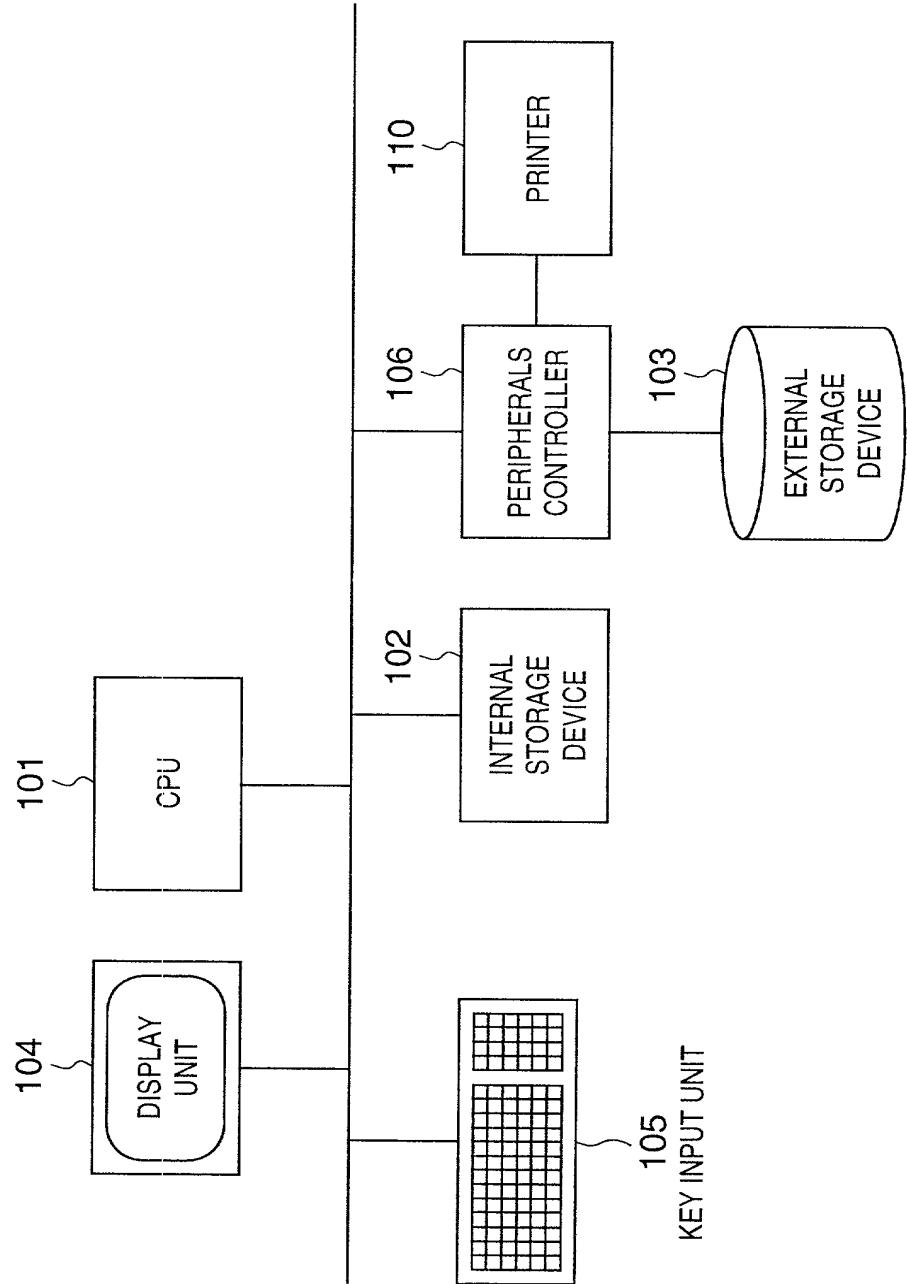
FIG. 1

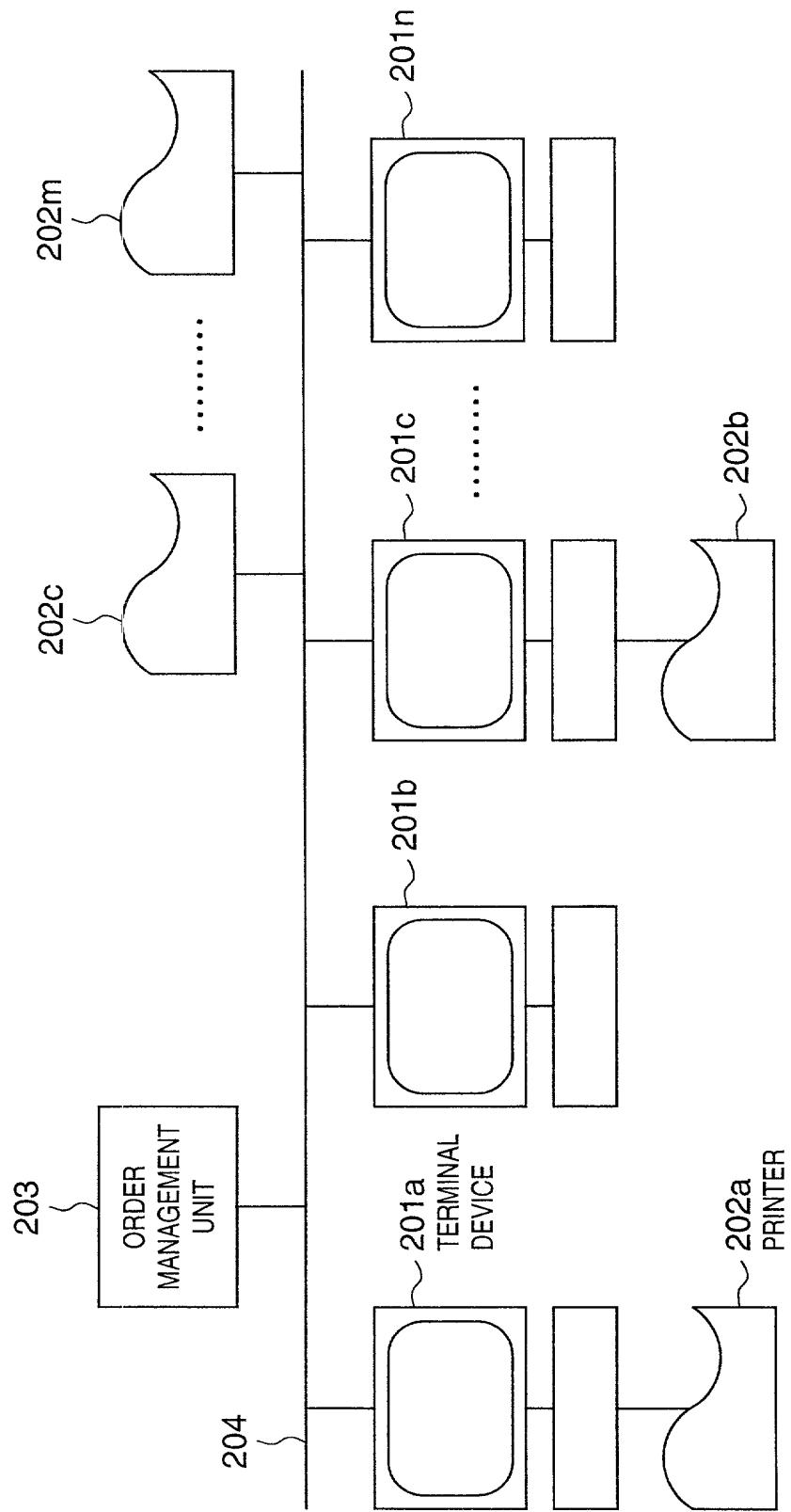
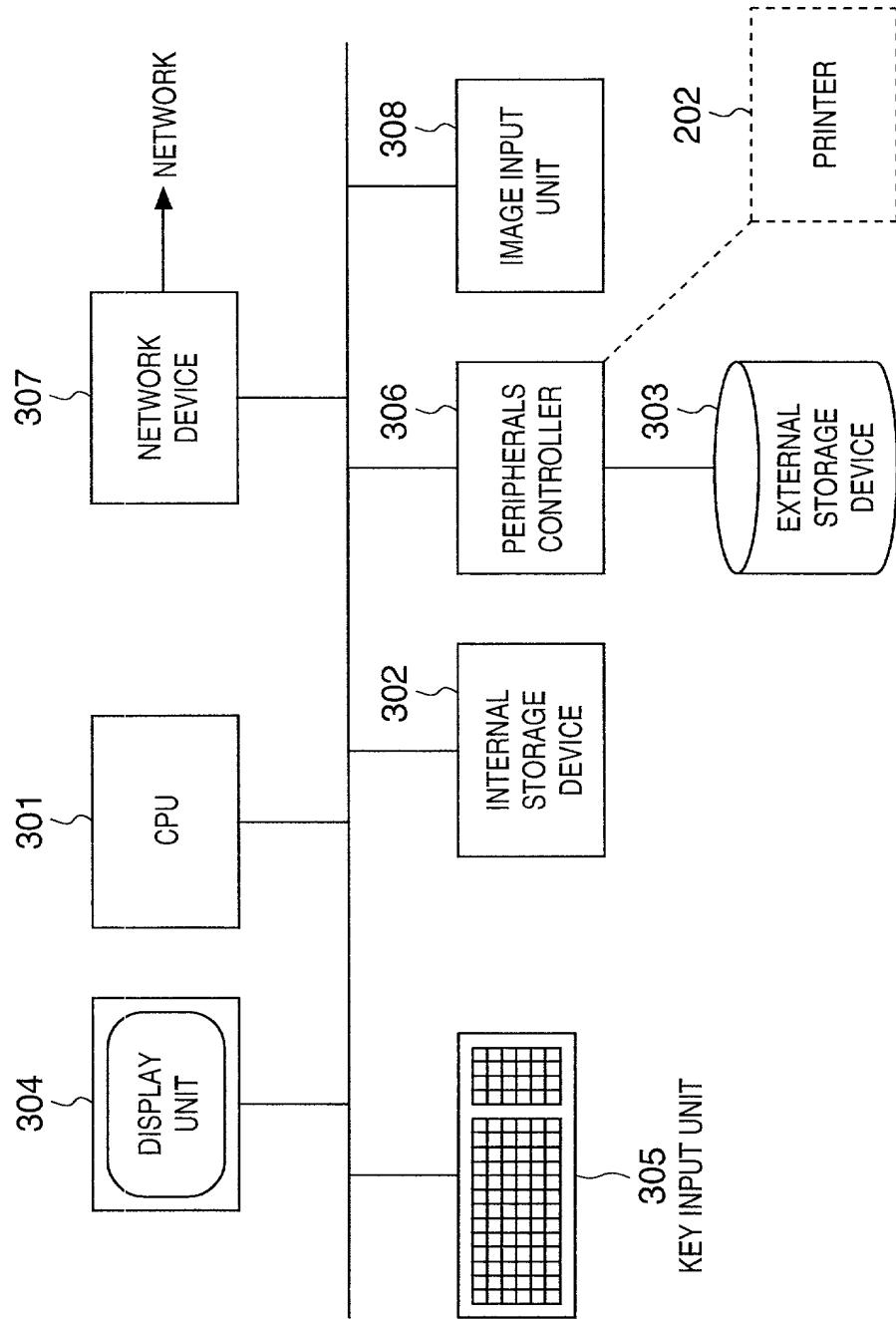
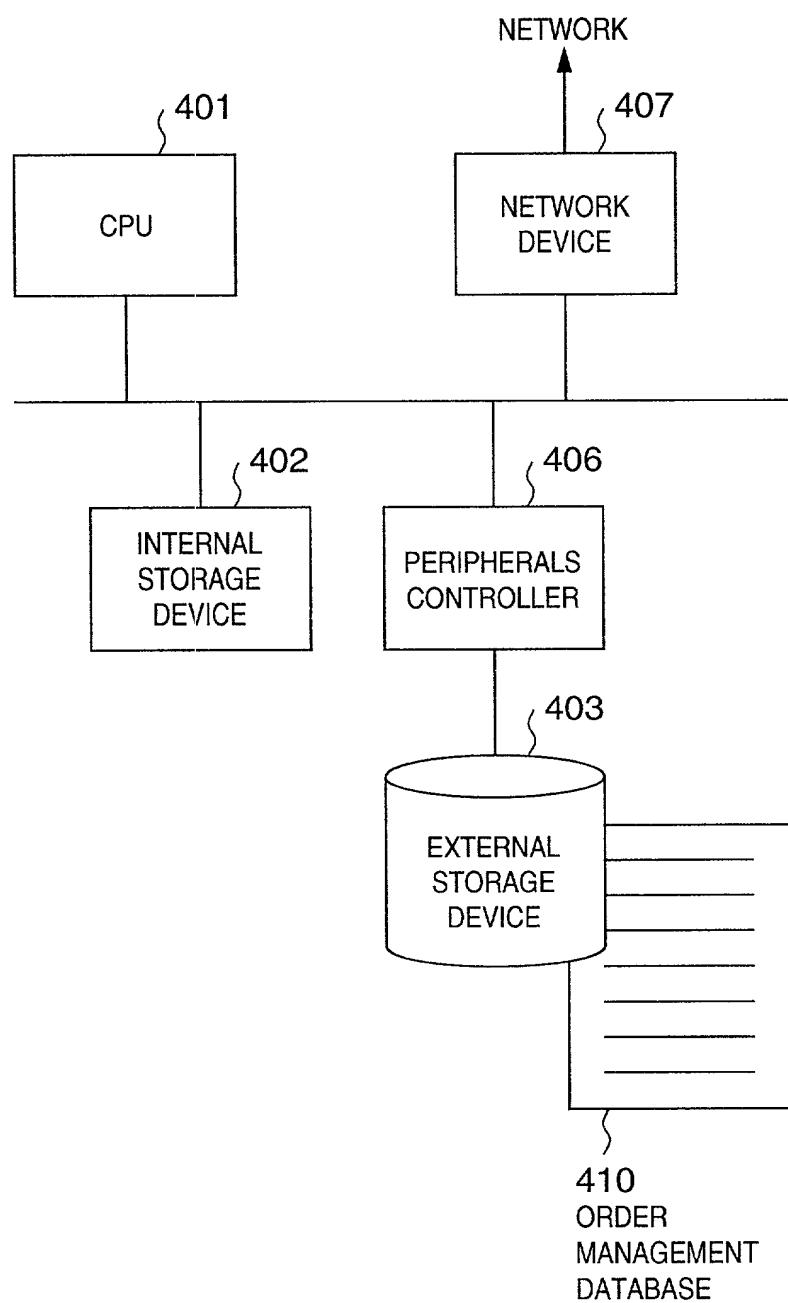
FIG. 2

FIG. 3

3/10



F I G. 4

F I G. 5

501	502	503	504
ID	FILE NAME	NUMBER OF PAGES TO BE PRINTED	PRINTING DATE
1	terminal_1b : image3.dat	4	
2	terminal_1n : image5.dat	2	
	⋮		
10	terminal_1a : image1.dat	2	12 / 24
	⋮		

6/10

FIG. 6

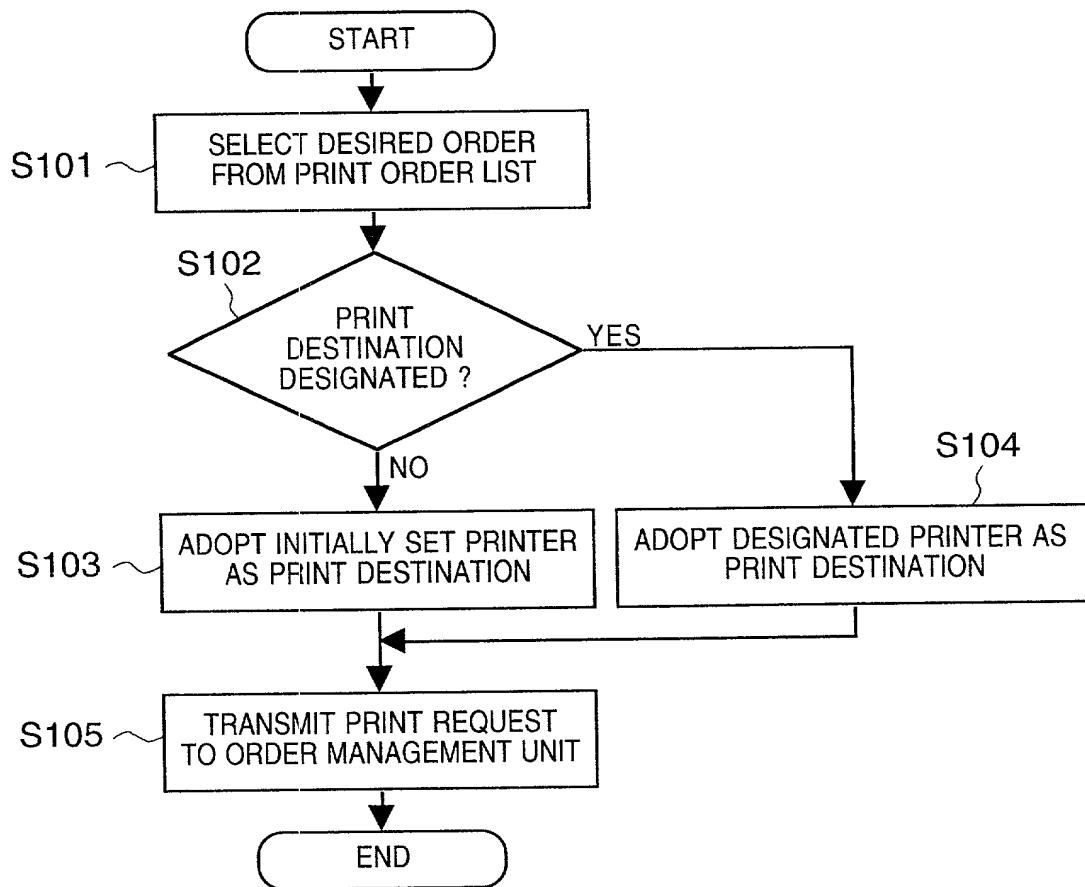
PRINT ORDER LIST		
ID	FILE NAME	NUMBER OF PAGES TO BE PRINTED
1	image3.dat	4
2	image5.dat	2
3		
10	image1.dat	2

SELECT IMAGE TO BE PRINTED

7/10

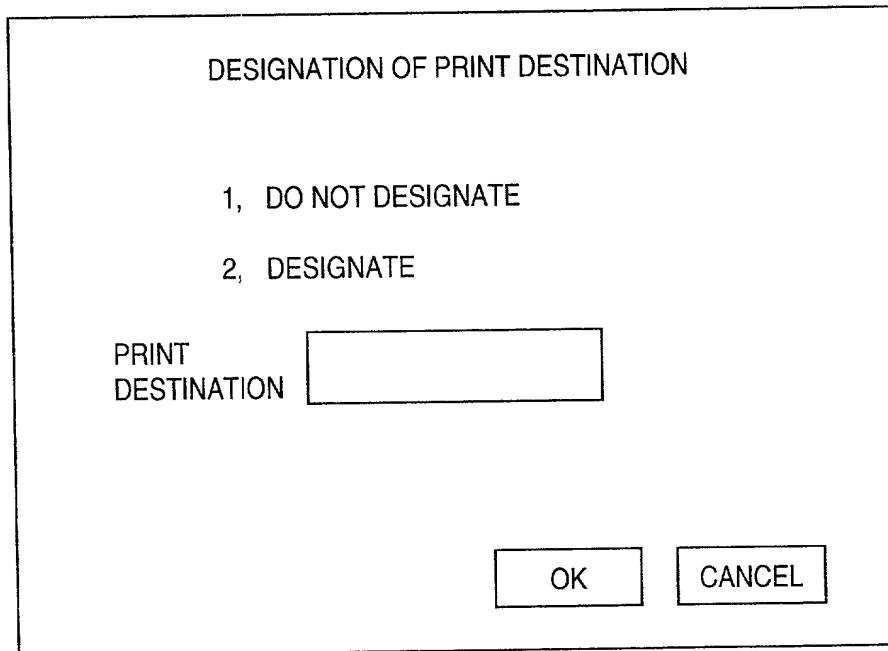
FIG. 7

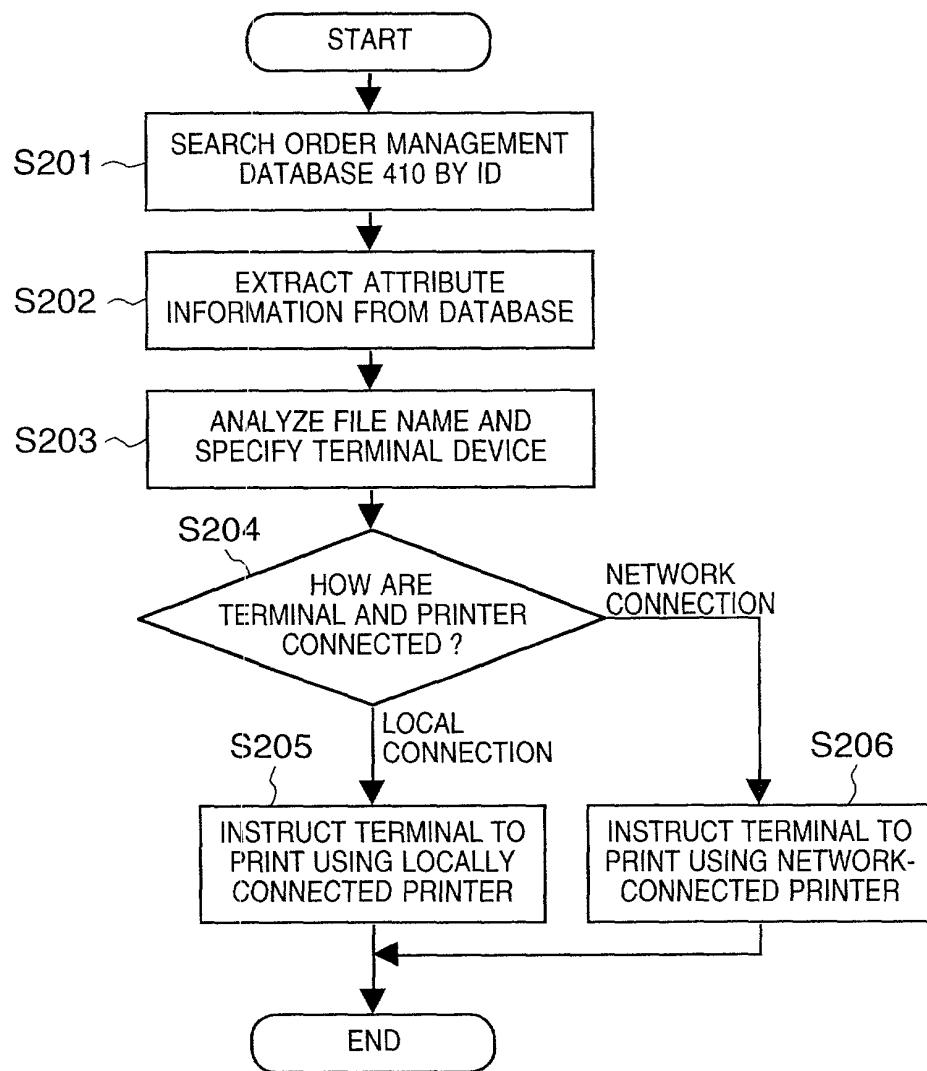
PRINT ORDER LIST			NUMBER OF PAGES TO BE PRINTED
ID	FILE NAME		
1	image3.dat		4
2	image5.dat		2
		...	
10	image1.dat		2

F I G. 8

9/10

FIG. 9



F I G. 10

**COMBINED DECLARATION AND POWER OF ATTORNEY
FOR PATENT APPLICATION**
(Page 1)

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name;

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

PRINTING SYSTEM AND METHOD OF CONTROLLING SAME,
the specification of which [X] is attached hereto. [] was filed on _____
as United States Application No. or PCT International Application No. _____
and was amended on _____ (if applicable).

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR §1.56.

I hereby claim foreign priority benefits under 35 U.S.C. §119(a)-(d) or §365(b), of any foreign application(s) for patent or inventor's certificate, or §365(a) of any PCT international application which designates at least one country other than the United States, listed below and have also identified below any foreign application for patent or inventor's certificate, or PCT international application having a filing date before that of the application on which priority is claimed:

<u>Country</u>	<u>Application No.</u>	<u>Filed (Day/Mo./Yr.)</u>	(Yes/No) <u>Priority Claimed</u>
JAPAN	11-036525	15/02/1999	Yes

I hereby appoint the practitioners associated with the firm and customer number provided below to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith, and direct that all correspondence be addressed to the address associated with that Customer Number:

FITZPATRICK, CELLA, HARPER & SCINTO
Customer Number: 05514

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full Name of Sole or First Inventor Noriaki TANAKA
Inventor's signature Noriaki Tanaka
Date February 9, 2000 Citizen/Subject of Japan
Residence 10-5-202, Kamikodanaka 1-chome, Nakahara-ku,
Kawasaki-shi, Kanagawa-ken, Japan
Post Office Address c/o CANON KABUSHIKI KAISHA,
30-2, Shimomaruko 3-chome, Ohta-ku, Tokyo, Japan
F511/A601948/ald